THE RELOCATION CURVE

AN AID IN RADIO RECEPTION

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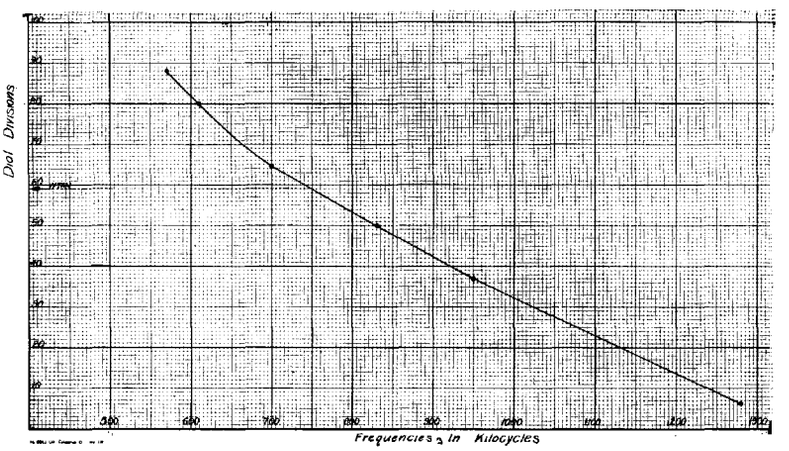
In the last two years the United States Federal Radio Commission has conducted an annual re-allocation of broadcasting stations in an attempt to accomplish better reception for the millions of radio fans throughout this country. Between July 1, 1926, and January 15, 1927, 104 broadcasting stations changed wavelengths, and 181 new stations were placed in operation. During the month of February, 1928, the Radio Commission directed a re-allocation that cleared 25 of the 36 channels between 600 and 1000 kilocycles. Plans are now being made by the Commission for changing the frequencies of about 61 stations in the near future.

These re-allocations have improved reception to a remarkable degree, but have resulted in considerable dissatisfaction among the fans, because of the difficulty they encounter in trying to relocate on the dial again their old favorite station. Many a radio enthusiast has searched the ether all evening for a certain station after the Federal Commission did its commendable act of re-allocation, only to quit the set with the blues.



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Because of this dissatisfaction there has arisen a need of some means for aiding the radio fan in relocating that particular station from among the hundreds of others that operate within the narrow broadcast range. As a consequence of this need, doubtless the relocation curve will be of great assistance in radio tuning.

The relocation curve is known technically as the calibration curve of the set. It is used invariably for tuning in radio transmission in connection with the wave meter, but has not found its way very far into radio reception. The curve illustrated is that of a well-known make of radio set, employing three tuning condensers uni-controlled by one dial called the "master dial" which is graduated, in divisions of ten, from zero to one hundred. The divisions of the master dial are used as the ordinates of the curve and are plotted against kilocycles, since this is the present-day conventional means of expressing the frequency of the station.

The ease with which the curve is used to assist in relocating a station may be illustrated by example. For instance, suppose Station WTAM is desired. The assigned frequency of the station is 750 kilocycles by authority of the Federal Radio Commission. Locate this frequency on the horizontal scale, and proceed perpendicularly upward to the curve as indicated by the broken line. From the point where the broken line intersects the curve move horizontally to the vertical scale. This scale shows the dial position of the station, which is 59 as indicated by the arrow head.

In this way the dial position of that lost favorite station or any desired station may be relocated when its frequency in kilocycles as authorized by the Federal Radio Commission is known. This authorized frequency may be obtained from any late official radio call book, or some daily newspaper.

Construction of the Curve

The construction of the relocation curve, although it may seem somewhat perplexing to the average radio fan, is no more difficult than its application. The curve is laid out on regular engineer's cross-section paper, preferably 20 inches by 16 inches, for convenience of construction and use. Using the lower left-hand corner of the graph as the origin, the broadcast range of frequencies in kilocycles is scaled off along the lower edge, and the dial divisions along the left hand edge.

Quite the opposite of what it may seem, obtaining points for the basis of the curve is a simple matter. The necessary data for points are obtained by selecting about six stations uniformly distributed over the graduated part of the dial and noting the dial number of each. These dial numbers are the ordinates of the points. The abscissas of these points, which are the frequencies of the stations expressed in kilocycles, may be taken from some late official radio call-book or newspaper. Having located the six points on the graph the curve now may be drawn through them by the use of a straightedge and French curve.

With modern broadcasting equipment the constructor of a relocation curve can rely to a considerable extent on the stability of present-day broadcasting stations operating on their assigned frequency. The government also checks daily on the frequency of all stations.

The radio fan must, however, bear in mind that the relocation curve is only applicable to the particular set for which it is made, and that any alterations made in the receiving system, such as changing the length of the aerial or the capacity of the tuning unit, renders the curve inapplicable.

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Such alterations change the natural frequency range of the set, and therefore the dial position of the stations. When any such changes are made it becomes necessary to make a new relocation curve for the set, which may be constructed on the same graph sheet as the old curve.

The method of locating stations by logging many and carefully interpolating wave lengths into dial divisions is a tedious one and has found much disfavor with the radio public. The late suggested idea of calibrating the dial of the receiver in kilocycles is a splendid one, but if any alterations are made in the receiving system such as those heretofore mentioned the dial would have to be recalibrated, and this becomes quite expensive and impracticable. The radio enthusiast will find the relocation curve a ready and most feasible means of relocating that favorite station; and if any alterations are made in the receiving system it requires only the expenditure of a small amount of time and effort to construct another curve.